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| APPLICATION NO.                 | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/633,335                      | 08/01/2003  | Zvi Yaniv            | 12179-P116US        | 4189             |
| 29444                           | 7590        | 02/09/2006           | EXAMINER            |                  |
| WINSTEAD SECHREST & MINICK P.C. |             |                      | TSOY, ELENA         |                  |
| PO BOX 50784                    |             |                      | ART UNIT            |                  |
| DALLAS, TX 75201                |             |                      | PAPER NUMBER        |                  |

1762

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/633,335

Applicant(s)

YANIV, ZVI

Examiner

Elena Tsoy

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 21-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 21-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. 10/173,880.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

***Response to Amendment***

Amendment filed on 12/29/2005 has been entered. Claims 16-20 have been cancelled. New claims 21-30 have been added. Claims 1-15, 21-30 are pending in the application.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Rejection of claim 18 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been withdrawn due to cancellation of the claim.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5, 8, 10, 11, 14, 21, 22, 25, 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Weiss et al (US 5990479) for the same reasons of record as set forth in paragraph 4 of the Office Action mailed on 8/25/2005 because Weiss et al teach that the organo luminescent semiconductor is capable of exhibiting a detectable change in adsorption (See column 2, lines 24-25), i.e. the organo luminescent semiconductor of Weiss is capable of detecting altered photoluminescence properties of the nanoparticles comprising the chemical adsorbate as a result of

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the chemical species being adsorbed onto the surface of the nanoparticles, as required by Amendment.

5. Claims 1-5, 8, 12, 15, 21, 22, 27, 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Daniels et al (US 20020004246) for the same reasons of record as set forth in paragraph 5 of the Office Action mailed on 8/25/2005 because Daniels et al teach that the luminescent semiconductor is capable of exhibiting a detectable change in adsorption (See P120), i.e. the organo luminescent semiconductor of Daniels et al is capable of detecting altered photoluminescence properties of the nanoparticles comprising the chemical adsorbate as a result of the chemical species being adsorbed onto the surface of the nanoparticles, as required by Amendment.

The Examiner Note: claim 4 was inadvertently omitted from the paragraph 5 of the Office Action mailed on 8/25/2005 because the paragraph 5 of the Office Action mailed on 8/25/2005 describes that Daniels et al disclose an organo luminescent semiconductor probe comprising quantum dot (See P81) of silicon (See P79, last line).

6. Claims 1-3, 5, 6, 8, 10, 11, 14 stand rejected under 35 U.S.C. 102(b) as being anticipated by Chee et al (US 6,544,732) for the same reasons of record as set forth in paragraph 6 of the Office Action mailed on 8/25/2005 because Chee et al teach that the luminescent semiconductor is capable of exhibiting a detectable change in adsorption (See column 27, lines 45-47), i.e. the luminescent semiconductor of Chee et al is capable of detecting altered photoluminescence properties of the nanoparticles comprising the chemical adsorbate as a result of the chemical species being adsorbed onto the surface of the nanoparticles, as required by Amendment.

7. Claims 1-3, 5, 6, 8, 10, 11, 14 stand rejected under 35 U.S.C. 102(b) as being anticipated by Barbera-Guillem et al (US 6,2617,79) for the same reasons of record as set forth in paragraph 7

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of the Office Action mailed on 8/25/2005 because Barbera-Guillem et al teach that the luminescent semiconductor is capable of exhibiting a detectable change in adsorption (See Abstract), as required by Amendment.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 6, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al/Daniels et al in view of Chee et al/Barbera-Guillem et al.

Weiss et al/ Daniels et al are applied for the same reasons as above. Weiss et al/ Daniels et al fails to teach that analytes are toxins.

Chee et al/Barbera-Guillem et al are applied for the same reasons as above.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the process of Weiss et al/ Daniels et al for detecting toxins since Chee et al/Barbera-Guillem et al teach that quantum dots can be used for detecting toxins.

10. Claim 7 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al/Daniels et al/Chee et al/Barbera-Guillem et al in view of Harris et al (US 20040009911) for the same reasons of record as set forth in paragraph 10 of the Office Action mailed on 8/25/2005.

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11. Claim 9 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al/Daniels et al/Chee et al/Barbera-Guillem et al in view of West et al (US 6,530,944) for the same reasons of record as set forth in paragraph 11 of the Office Action mailed on 8/25/2005.

12. Claims 12, 13, 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al/Chee et al/Barbera-Guillem et al in view of Daniels et al for the same reasons of record as set forth in paragraph 12 of the Office Action mailed on 8/25/2005.

13. Claim 13 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al/Daniels et al/Chee et al/Barbera-Guillem et al in view of Ravkin et al (US 6,908,737) for the same reasons of record as set forth in paragraph 12 of the Office Action mailed on 8/25/2005.

14. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al/Daniels et al in view of Harris et al (US 20040009911).

Weiss et al/Daniels et al are applied here for the same reasons of record as set forth in paragraphs 4 and 5 of the Office Action mailed on 8/25/2005. Weiss et al/Daniels et al fail to teach that adsorption of chemical species is reversible process.

Harris et al teach that quantum dots can be used in reversible processes (See P8, 16, 156, 161).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used quantum dots of Weiss et al/Daniels et al in reversible processes, as taught by Harris et al.

15. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al in view of Daniels et al.

Weiss et al are applied for the same reasons as above. Weiss et al fail to teach that fail to teach that detecting and analyzing the altered photoluminescence properties comprises utilizing a

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spectrometer (Claim 27) or optical filter (Claim 28); photoluminescence properties can be for quantitating analytes (Claim 29).

Daniels et al, as applied above, teach that a spectrometer or filters can used for detecting photoluminescence properties (See P170) and photoluminescence properties can be for quantitating analytes (See P16).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a spectrometer or optical filter in Weiss et al for detecting and analyzing the altered photoluminescence properties since Daniels et al teach that a spectrometer or filters can used for detecting photoluminescence properties.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized detecting and analyzing the altered photoluminescence properties in Weiss et al/Chee et al/Barbera-Guillem et al for quantitating analytes since Daniels et al teach that photoluminescence properties can be for quantitating analytes.

16. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al/Daniels et al in view of Ravkin et al (US 6,908,737).

Weiss et al/Daniels et al are applied for the same reasons as above. Weiss et al/Daniels et al fail to teach that fail to teach that detecting and analyzing the altered photoluminescence properties comprises utilizing an optical filter.

Ravkin et al teach that fluorescent emissions are usually distinguished by optically filtering with band pass, or combination of long and short pass, filters (See column 28, lines 18-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized optical filter in Weiss et al/Daniels et al for detecting and analyzing the altered photoluminescence properties since Ravkin et al teach that fluorescent emissions are

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usually distinguished by optically filtering with band pass, or combination of long and short pass, filters.

17. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al/Daniels et al in view of West et al (US 6,530,944).

Weiss et al/Daniels et al are applied for the same reasons of record as set forth in paragraphs 4 and 5 of the Office Action mailed on 8/25/2005. Weiss et al/Daniels et al fail to teach that the nanoparticles are present in aerosol.

West et al teach that the nanoparticles can be delivered in aerosol (See column 16, lines 5-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used aerosol form to deliver nanoparticles in Weiss et al/Daniels et al/Chee et al/Barbera-Guillem et al since West et al teach that the nanoparticles can be delivered in aerosol.

18. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al/Daniels et al in view of Chee et al (US 6,530,944).

Weiss et al/Daniels et al are applied for the same reasons of record as set forth in paragraphs 4 and 5 of the Office Action mailed on 8/25/2005. Weiss et al/Daniels et al fail to teach that the nanoparticles are present in the gas phase.

Chee et al teach that luminescent sensors can be used for detecting specific substances in gases (See column 1, lines 10-13, 25-30; column 2, lines 59-64).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used luminescent sensors of Weiss et al/Daniels et al for detecting specific substances in gases since Chee et al teach that luminescent sensors can be used for detecting specific substances in gases.



***Response to Arguments***

19. Applicants' arguments filed 12/29/2005 have been fully considered but they are not persuasive.

(A) Applicants argue that Weiss et al do not teach limitations of Amendment.

The Examiner respectfully disagrees with this argument for the reasons discussed above.

(B) Applicants argue that Daniels et al do not teach limitations of Amendment because Daniels et al require a targeting compound *bound* to the nanocrystals and thus, the analyte is not in direct contact with nanocrystals.

The Examiner respectfully disagrees with this argument. First of all, the claims do not recite negative limitations of non-binding. Secondly, the "direct contact" does not mean that there should not be any binding. Thirdly, it is well known in the art that chemical compounds may be adsorbed onto a surface by binding to the surface.

(C) Applicants argue that in Chee et al or Barbera-Guillem et al nanocrystals do not interact directly to biomolecules.

The Examiner respectfully disagrees with this argument because the claims do not recite "direct interaction".

***Conclusion***

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy  
Primary Examiner  
Art Unit 1762

ELENA TSOY  
PRIMARY EXAMINER  
*ETS*

February 6, 2006